


CLAIMS

What is claimed is:

1. A method for therapeutically treating a patient, comprising the steps of: 

5 (a) providing a medical device delivery system having an inner shaft
and a tubular outer sheath, each with proximal and distal ends; a handle near the proximal
ends of the inner shaft and outer sheath; a medical device for delivery by the delivery
system and for performing a therapeutic procedure at a desired site for treatment; a
delivery mechanism for selectively and progressively pulling the outer sheath in the
10 proximal direction to release the medical device; and a locking member that holds the
delivery mechanism in an initial configuration, the locking member tending to releasably
resist inadvertent release of the medical device by the delivery mechanism;

 wherein the medical device is positioned within the outer sheath in an
initial configuration; wherein the handle has a first and second independently movable
15 actuator coupled to the delivery mechanism;

 (b) inserting the medical device delivery system along a body passage
until the medical device is positioned at or near the desired site for treatment;

 (c) unlocking the locking member;

 (d) moving the first actuator a first selected amount; such movement
20 of the first actuator causing the outer sheath to move an amount in the proximal direction
at a first proportional rate in a precise manner, and causing the outer sheath to partially
release the medical device;

(e) moving the second actuator, causing the outer sheath to move in the proximal direction at a second greater proportional rate in a rapid manner, to fully release the medical device; and

(f) withdrawing and removing the medical device delivery system
5 from the body passage, and allowing the medical device to remain at the desired site for treatment.

2. The method as set forth in Claim 1, further comprising, between steps (d) and (e), the additional steps of: evaluating in greater detail the position of the medical
10 device compared to the position of the desired site to be treated; and adjusting the position of the medical device delivery system based on the evaluation.

3. The method of Claim 1, wherein the medical device is a self-expanding
15 stent.

4. The method of Claim 1, wherein the locking member is adapted to unlock
only once.

5. The method of Claim 1, wherein the locking member breaks during said
20 unlocking step (c).

6. A method for therapeutically treating a patient, comprising the steps of:

(a) providing a medical device delivery system having an inner shaft and a tubular outer sheath, each with proximal and distal ends; a handle near the proximal ends of the inner shaft and outer sheath; a medical device for delivery by the delivery system and for performing a therapeutic procedure at a desired site for treatment; a delivery mechanism for selectively and progressively pulling the outer sheath in the proximal direction to release the medical device; and a locking member that holds the delivery mechanism in an initial configuration, the locking member tending to releasably resist inadvertent release of the medical device by the delivery mechanism;

10 wherein the medical device is positioned within the outer sheath in an initial configuration; the handle has a first and second independently movable actuator coupled to the delivery mechanism; the first actuator is a rotatable knob; and the second actuator is a longitudinal slider;

(b) inserting the medical device delivery system along a body passage
15 until the medical device is positioned at or near the desired site for treatment;

(c) unlocking the locking member;

(d) rotating the first actuator a selected amount; such rotation of the first actuator causing the outer sheath to move an amount in the proximal direction at a first proportional rate in a precise manner, and causing the outer sheath to partially
20 release the medical device;

(e) sliding the second actuator longitudinally, causing the outer sheath to move in the proximal direction at a second greater proportional rate in a rapid manner, to fully release the medical device; and

(f) withdrawing and removing the medical device delivery system from the body passage, and allowing the medical device to remain at the desired site for treatment.

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7. The method as set forth in Claim 6, further comprising, between steps (d) and (e), the additional steps of: evaluating in greater detail the position of the medical device compared to the position of the desired site to be treated; and adjusting the position of the medical device delivery system based on the evaluation.

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8. The method as set forth in Claim 6, wherein the second proportional rate is 1:1.